REVISED 01/05

LSUE COURSE SYLLABUS

I.	PHSC 1002	Instructor: Science Faculty

II. Course description from the current LSUE catalog:

Physical Science. Lec. 3; Cr. 3.
A survey course in various fields of physical science emphasizing the more significant developments in chemistry and geology with attention given to recent discoveries and applications. This course is not intended for students who wish to pursue further work in these areas and may not be substituted for the basic course in these fields.

III. Textbook(s) and other required materials:

Physical Science, 8th ed. by Bill Tillery, published by McGraw-Hill.

Supplementary Reference and Sources:

IV. Evaluation/grading (policy and basis; number and frequency of tests and papers; weights of particular tests or papers; etc.):

Final grades are based upon the scores of the hourly exams, and a final exam. There will be three hourly exams (worth 100-points each), and a final exam **(cumulative)** worth 200 –points. The ten-point scale is used. All students must take the final exam or receive an F for the final grade. All tests aim at the application of knowledge, and the majority of the questions will be solving problems.

V. Policies pertaining to attendance, late work, make-up work, etc.:

Students are encouraged to attend every lecture. Attendance for tests is mandatory. If a student has a mitigating circumstance which absolutely prohibits him from being present for a test, he must get in touch with the instructor and, if his excuse is acceptable and verified, his final exam grade will count as the missing exam grade as well.

VI. Course objectives:

The study of Physical Science 1002 is intended to aid liberal arts students in gaining an understanding of chemistry and geology and an appreciation of their importance in the framework of the technological pattern of today's world.

The Liberal Arts student should:
Learn and appreciate the importance of chemistry and its applications.
Become familiar with basic geological foundations.
Become proficient in the art of problem solving.

VII. Major instructional objectives:

The instructor's main objective is to introduce the liberal arts student to the basic principles of chemistry and geology, and science in general.
The teaching methods are purposefully slow-paced to give the student enough time to assimilate the material. Another very important objective is to teach problem solving methods, especially in chemistry, so that the student will have at least an introduction to critical thinking skills and synthesis.

The student should:

1. Learn and actively use the Metric System (mass and volume)

   Be able to convert one quantity to another from within the Metric System.

2. Learn the concept of matter, properties of matter, changes in matter.

   Learn to distinguish between physical properties and chemical properties.
   Learn to distinguish between physical changes and chemical properties.

3. Study and learn the names and the symbols of the most commonly encountered elements on the periodic table.

4. Study and understand the structure of matter.

   Understand the concept of the atom.
   Learn about subatomic particles: protons, electrons and neutrons.
   Learn the concept of atomic number.
   Study the arrangement of electrons about the nucleus.
   Relate ionization energies to the outer-most energy level electron/electrons.
   Draw electron-dot structures.

5. Understand the concept of metals and nonmetals and the ionic bond.

Use the periodic table to study Alali metals, Alkaline Earth metals, Halogens and the inert gases.

Understand the concept of chemical bonding.
Learn and understand ionic bonding.
Write formulas and names of ionic compounds.

6. Learn the theories of covalent bonding.

Write formulas and names of covalent compounds.

7. Write balanced chemical equations including simple combination reactions, single displacement reactions, and double displacement reactions.

8. Learn Avogadro's number and the concept of the mole.

9. Study and learn the "arithmetic of chemistry": Stoichiometry.

Stoichiometric problem solving.

10. Learn acid-base theory and understand the concept of neutralization.

Write the names and the formulas of some common acids and bases.
Learn pH and acid-base problem solving.

11. Study and learn some important geological principles.

The composition of Earth.
Rocks and minerals.
The atmosphere
The oceans.
Mountains and volcanos.
Earthquakes.
Continental drift.

VIII. Brief summary of course content by major units of instruction:

A. Chemistry
   1. Atoms and Molecules
      a. Chemical change, elements
      b. Atomic theory, symbols, and formulas
      c. Atomic structure, number
   2. Structure of the Nucleus
      a. Protons, electron, neutron, isotopes
      b. Nuclear energy, fission, fusion
   3. Periodic table

a. Metals, nonmetals, families, groups, periods
b. Atomic structure, shells, subshells, orbitals

4. Bonds
   a. Molecules and Compounds
   b. Ionic bonds
   c. Covalent bonds, molecular orbital
5. Solid State
6. Calculations
   a. Valence
   b. Equations
   c. Stoichiometry
7. Ions and solutions
   a. Solubility
   b. Solutions, Electrolytes, Equations
8. Acids, bases, and salts
   a. Acids, pH
   b. Bases
   c. Neutralization

B. Geology

1. Earth materials
   a. Crust composition, silicates
   b. Soil
2. Rocks
   a. Classifications, types
   b. Soil
3. The atmosphere
4. The oceans
5. Erosions and Sedimentations
6. Vulcanism
7. Within the Earth
8. Continental drift
   a. Mantle and floating crust
   b. Mountains
   c. Continental drift

IX. Methods of instruction:

Instructional methods used in this course are comprised of lecture, demonstrations, and when time permits, video presentations of some interesting topics.

X. Brief overview of special instructions:

None.

XI. Bibliography of supplemental references and/or source materials:

None.

ADS Americans with Disabilities Act) Statement

Any student who is a "qualified individual with a disability" as defined by Section 504 of the Rehabilitation Act and Title II of the ADA, and who will need accommodated services (e.g., note takers, extended test time, audiotape, tutorials, etc.) for this course must register and request services through the Office of Academic Assistance Programs, S-150.

CSD CODE OF STUDENT CONDUCT

LSUE enforces discipline on campus to protect the academic environment of the campus and the health and safety of all members of the University community. To accomplish this objective, the University enforces standards of conduct for its students. Students who violate these standards can be denied membership in the LSUE community through imposition of disciplinary sanctions.

The LSUE Code of Student Conduct can be found on the LSUE website (lsue.edu). Follow the "Current Students" link from the homepage, and then click on "Student Handbook."